Windmill at Water Mill
Village of Water Mill
Town of Southampton
Suffolk County
New York

HAER No. NY-134

PHOTOGRAPHS

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
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HISTORIC AMERICAN ENGINEERING RECORD

Windmill at Water Mill

NY-134

Location:	On the Montauk Highway, Village of Water Mill , Town of Southampton, Suffolk County, Long Island, New York.
Date of Construction:	Circa 1800: Last technical changes made 1938.
Present Owner:	Water Mill Village Improvement Association Inc. Mr. Richard Ross, President Georgian Lane Water Mill, New York 11976
Present Use:	Discontinued milling operations in 1887 and in disuse since then. The exterior has been maintained as part of a public park since 1934.
Significance:	The Windmill at Water Mill is one of 11 extant late 18th and early 19th century wind-driven gristmills on eastern Long Island; it served the milling needs of local farmers when eastern Long Island was primarily a grain and cattle producing area lacking in sufficient water power. One of nine remaining windmills with major internal works, the mill structure and machinery offer important documentation of the wood joinery techniques used in 17th, 18th and 19th century American domestic and utilitarian architecture. The mill also helps document eastern Long Island's cultural and economic ties to New England, as well as the migration of millwriting technologies from England.
Historian:	Grania Bolton Marcus, July 1978
Transmitted by:	Kevin Murphy, Historian HAER, April 1984

I. INTRODUCTION

The Windmill at Water Mill, built in 1800, is the best surviving example of the early type of smock mill on Long Island. Although much has been altered, it retains more of its original machinery that the 1795 Gardiner's Island Windmill, the only other mill of this early type. The Gardiner's Island Mill was rebuilt and given intermediate gearing by Nathaniel Dominy in 1815.

Although the Windmill at Watermill now has intermediate gearing and two pair of millstones, like all the other surviving mills, its original machinery was quite different. When it was built in 1800, this windmill had only one pair of millstones in the center of the mill, run by an upright shaft engaging the brake wheel. This manner of driving the stones was adopted from the post mills, as was the use of a tail pole to wind the mill.

The first Long Island smock mills then, were very similar to the first English smock mills which had been built about 150 years earlier. These English mills also had the direct-drive gearing and tail pole of the post mill.

As well as documenting the first type of smock mill built on Long Island, the Windmill at Water Mill establishes the very close ties between the millwriting traditions of Long Island and New England. As it was built in 1800, the Windmill at Water Mill was nearly identical to the windmills being built in Massachusetts at the same time. Seven Massachusetts windmills still stand with their machinery intact; six were built on Cape Cod and one on Nantucket.

All seven of the mills are generally the same size as the Windmill at Water Mill, all are winded by tail poles, and all have one pair of direct-drive millstones. Five of the Massachusetts mills have the same tentering gear as was originally used in the Windmill at Water Mill. This similarity with the Massachusetts windmills suggests that the millwriting traditions of Long Island and New England developed almost as one through the seventeenth and eighteenth centuries. However, this type of smock mill marks the end of the evolution of windmill technology in Massachusetts and the beginning of the development of the smock mill on Long Island.

The Windmill at Water Mill, exhibits certain primitive characteristics uncommon in surviving Long Island smock windmills, even those built earlier. The smallest of the ten remaining mills, with unusually low ceiling heights, it is the only one whose cap rests on a "dead curb" and is winded by a tailpole. Its windshaft, a later replacement, also differs from other extant Long Island windmills.

Like many of the other mills, it also indicates eastern Long Island's eighteenth and early nineteenth century isolation from English contemporary advances in millwrighting technology. Although the Corwith family owned the mill for most of its operating existence, and it has only been moved once and has remained on its present site for 165 years, documentation of its construction and operation is surprisingly scanty.

II. History of the Windmill

Secondary accounts agree that the windmill was built about 1800 at North Haven, a peninsula just north of Sag Harbor called Hog Neck in the eighteenth century.[1] The Southampton Trustees Records indicate that in February of 1799 James Mitchel petitioned the Trustees to build a mill on Hog Neck. Permission was granted on May 14, 1799 and Mitchel paid nine pounds seventeen shillings for the privilege.[2] The record, however, does not specifically state that Mitchel's was a windmill

and secondary accounts conflict. An inscription carved on the Windmill at Water Mill's staircase string, "Began to Grinde Aug. 1, 1800," supports a construction date of about 1800. The mill was probably one of about five then in the Sag Harbor area, a whaling port which was just beginning to develop as a commercial center at the end of the eighteenth century.[3]

No record of the mill's builder exists and the early years of its operation are obscure. Neither James Mitchel nor John Jermain, who may have joined him in building the mill, are woodworking craftsmen or millwrights. An account book kept by Samuel Corwithe, a cooper in Bridgehampton who did some millwork between 1795 and 1835, lists an account with Jeams Michel /sic/ between 1801 and 1815, but does not mention a mill.[4] One secondary account states that the Windmill at Water Mill was run by a miller named Ludlum or Ludlow, but no other record of this was located.[5] None of the extant newspapers for the early nineteenth century contain any advertisements which could be linked to the mill. James Mitchel may have continued to own it (or another mill) however, because an entry in an account book kept by Pardon T. Tabor, a carpenter in Sag Harbor who worked on the Beebe Windmill (1820) in Bridgehampton, lists "to one days work on the mill" to the account of "James and Stevan Mitchell" on January 18, 1812.[6]

Local histories state that James Corwith purchased the mill in 1813 or 1814. The Corwith family believes that he acquired it from Joshua Howell of Sag Harbor, a miller, for $750, dismantled it and moved it with twelve yoke of oxen to

what was then common land in Water Mill to replace a mill that had been destroyed in a storm on December 24, 1811.[7] The price allegedly paid for the windmill fits with what we know of the cost of building some of the extant mills: the Gardiner's Island Windmill (1795) cost $773. the Wainscott Windmill (1813), $304 and the Hook Windmill (1806), $1,320. An account book kept by Sullivan Cook, a Bridgehampton woodworking craftsman, documents 38 & ½ days work at a charge of ten pounds one shilling for James Corwith between September 24th and November 12th, 1813, but does not indicate that he necessarily worked on the windmill. Cook does mention other mill work though, and it is possible he did repairs or reconstruction after the windmill was moved to Water Mill.[8]

In 1810, Corwith had purchased nine acres of land and buildings in Water Mill just north of the village commons from Jeremiah and Rebecca Ludlum for $750;[9] on September 8, 1813 he married Harmenia Goodale, the daughter of Joseph Goodale, a farmer whose property was nearby in Water Mill.[10] Evidently, then, he had by 1813 settled in Water Mill but neither the Southampton Trustees Records or Town Records make any mention of permission to place the mill on common land. In fact, although some accounts state that Corwith purchased the land from the Trustees of the Proprietors of Common Land in 1814,[11] the land was not deeded to Corwith until 1860, when he purchased it for twenty dollars.[12] It seems likely then, that during most of the fifty years that James Corwith operated the windmill, it stood on common land.

Windmills, although privately owned, were considered as essentially community objects and many others, including the Beebe (1820), Hook (1806) and Hayground (1801) mills, rested on commons.[13] Although the water mill which gave the village its name was located just north of the commons, in 1813 it no longer served as a grist mill. By the early nineteenth century it was a "wool manufactory" used for fulling and making cloth and then a paper mill, so that the windmill would have been the only grist mill in the immediate area.[14]

We know relatively little about James Corwith's life as a miller. In 1818, Corwith identified himself both as a miller and a yeoman.[15] The United States Census of inhabitants of Southhampton for 1850 , where the enumerator recorded the occupation as given by the respondent, lists Corwith's occupation as miller. Yet, like many other farmers on Long Island in this period, he seems to have had multiple occupations. Although Corwith evidently considered milling his primary occupation, he also kept a store, dug clams and oysters and farmed. But the census for 1860, taken when he was seventy-eight, records him as a farmer. Probably he had retired from running the mill.[16]

As a farmer, Corwith grew primarily wheat, corn, rye and oats, the dominant productions of Long Island farmers in the eighteenth and most of the nineteenth centuries.[17] He also owned some livestock. He apparently farmed on a fairly modest scale; in 1850 the census taker valued his real estate at $1,000 and his farm at $1,400; he held about twelve acres of taxable property assessed at $1,000. In 1860 the United States Productions

of Agriculture Census valued it at $2,000. Corwith never owned more than about twenty-four acres of taxable property and the Town of Southampton assessed his holdings, including the mill, at $1,500 between 1853 and 1872.[18] From the extant evidence it is difficult to determine a value for the mill itself. As a property owner with holdings of this size, Corwith was probably considered a solid member of the community but by the standards of mid-nineteenth century Southampton, his real assets placed him among the small to middle level farmers, even toward the end of his life.[19]

Like many farmers on eastern Long Island in the first half of the nineteenth century, Corwith operated frequently in a barter economy, paying at least some of his bills in kind. Local storekeepers in Sag Harbor and Southampton during the 1830s and 1840s received corn meal, flour and eggs, as well as some cash, for staples including dry goods, pills, molasses, candles, salt, tea, sugar, coffee, camphor gum, starch and soap. Daniel Hildreth, the owner of a sawmill and a pumpmaker, who cut boards and did other work for Corwith, records payment in wheat, corn and oyster shells, as well as cash.[20] Cash was probably in short supply for most farmers and Corwith may have received money infrequently for the corn meal, flour, oysters and eggs he supplied to local farmers. A bill from Corwith to Daniel Fordham, a neighboring farmer, shows that over a period of four years, on a bill totaling $159.19, Fordham had paid exactly $1.00 in cash (and apparently nothing in kind).[21]

It is difficult to say, of course, whether such a payment record was common practice, but other evidence also indicates that caeh may have been a scarce commodity in James Corwith's

life, especially in the early years of the mill's operation when he may have been trying to pay off obligations connected with its purchase. On April 22, 1818, he bound himself to Stephen Howell of Sag Harbor, a wealthy shipowner, for $1,400 and agreed to pay "lawful interest"(five percent) as well as $100 of the principal annually. As part of his agreement with Howell, Corwith mortgaged two parcels of land totaling thirty-eight acres for $700, with the stipulation that Howell could sell them if Corwith defaulted on payment of the $700. A record of payment attached to the bond indicates that he made two payments, April 10, 1819 and April 10, 1820, totaling $291 before both the bond and the mortgage were assigned to James' brother Silas on April 22, 1822 for $570, the remaining principal and interest. James appears to have resumed payment of interst in April, 1823 but wasn't able to pay anything on the principal until the following year, when he paid $390 on September 13, 1824. Much of this was raised by Corwith's sale of thirty acres of land to Jeremiah Hains for $280 on the same date. Silas received the money directly from Hains. The obligation appears to have been paid off by April, 1829, eleven years after the original bond was contracted.[22]

During the same years, James and Harmenia Corwith executed two unrecorded deeds selling their property to James' relatives in Bridgehampton. The first, dated April 8, 1818, conveys "a certain tract of Land with the Buildings thereon and outbuildings, viz The Wind Mill and smokehous . . . Containing by Estimation Nine acres" to Mary Corwithe, William

Corwithe and Silas Corwithe for $1,400. Executed only a few days before the bond with Stephen Howell, this deed was never acknowledged and presumably the mill remained in James' hands, for on August 23, 1821 he sold his nine acre farm and "all that certain Wind Mill standing on the Highway South of said premises. . ." for $1,000 to Mary, Silas and Abigail Corwithe. Although the farm, or perhaps the mill, appears to have declined in value between these two transactions, more likely the amounts mentioned reflect Corwith's indebtedness.[23]

The second deed was acknowledged but Corwith evidently retained ownership of the windmill because there is no record of his having purchased it back. Probably these deeds were executed simply to provide collateral for Corwith's debts to his relatives. Other sources support his continued ownership of the mill. Account books kept by John Burnet, a blacksmith, and Daniel Hildreth show that repairs were made to the mill and charged to James Corwith from 1822 to 1829, 1838 to 1839 and 1854; in 1860 a deed for the land upon which the mill stood refers to "the Mill of James Corwith."[24]

The dearth of records makes it difficult to answer even the most basic questions relating to the operation of the windmill. Unlike the Hook (1806), Beebe (1820), Shelter Island (1810), Hayground (1801) and Wainscott (1813) mills, as well as others, the Windmill at Water Mill never appears on the United States Products of Industry Census in any decade between 1850 and 1880. No Corwith account books survive and no newspaper advertisements were

located. A few clues, however, emerge from limited sources. An account book kept by John Burnet, a blacksmith in Water Mill, shows several entries for repairs to a mill charged to James Corwithey [sic] in 1838 and probably 1839 (the date is illegible). During the months of March, April, May, June and July Burnet records "sharpning [sic] mill peckes " on several occasions as well as repairs such as "one new hook for the brase [brake?] to the mill and mending the brase," "for wages for the mill," and "for hooping trundle heads."[25] Since windmills required frequent repairs, and the stones continual sharpening, while they were grinding, it appears that the Corwith mill may have operated mainly during the spring and early summer months. On March 21, 1854 Daniel Hildreth noted in his diary that he "cut a white oak tree" for Corwith for a mill shaft.[26] Hildreth also sawed "fillies and Bords for grist mill wheels" in August, 1822.[27] Assuming that Corwith probably made such major repairs at the beginning or end of the grinding season, this evidence further supports a limited milling period, perhaps in the spring and summer. A bill from James Corwith to Daniel Fordham for grinding and the purchase of flour, corn meal, oysters and eggs gives only a few dates from 1837 to 1841, but those that appear are the months of February, March and April.[28]

Spring and summer grinding would have allowed the grain to dry for several months after the previous harvest and would have taken advantage of the prevailing southwest wind with minimal need to engage the mill's cumbersome luffing mechanism. Finally, it would have allowed Corwith to operate the mill mainly in the months before harvesting his own crops

in July, August, September and October.[29]

The windmill's apparently seasonal operation indicates that it was probably a custom mill, as were virtually all nineteenth century wind-driven gristmills on Long Island, usually operating only a few months a year.[30] It ground mostly corn, but also wheat and rye, and bolted flour for local farmers. Like other custom mills on Long Island, the windmill's chief production was probably grist, or feed, for horses and cattle.[31] In return for grinding, the miller took a toll, usually one-tenth of the production.[32] With several other custom windmills within a few miles of Water Mill, in Amagansett, East Hampton, Bridgehampton, Southampton, Hayground, Wainscott and Shelter Island, the Corwith mill probably mainly served the small community of Water Mill, which by 1887 still had only about two hundred inhabitants.[33]

Since the Federal Products of Industry Census does not list the Windmill at Water Mill, and we lack other sources for production data, we do not know the amount of annual production at anytime during its useful life. But fragmentary evidence suggests that it may have been quite small. The census takers overlooked the mill when enumerating the town's industrial sites in each decade between 1850 and 1880, even though in 1850 James Corwith identified himself as a miller and the mill was located directly accross from his residence.[34] Since the lowest production listed in 1860 and 1870 of thirteen wind-driven gristmills was the Hayground Windmill (1801), which ground only 2,000 bushels of corn, wheat and oats and produced only 160 barrels of flour and 16,000 barrels of feed and meal

worth $2,000, we may surmise that the Windmill at Water Mill produced even less in these years. During the first half of the nineteenth century, however, before the advent of large steam-powered grist mills which were built in Bridgehampton, East Hampton and Southampton, it is possible that the mill produced much more.[35]

A photograph of the windmill taken c. 1889 shows the neck journal of a wind shaft with filleted iron neckwear lying on the ground beside the mill. This may have been part of the original shaft but more likely was the one installed in 1854 for which Daniel Hildreth cut a "white oak

tree." However, this type of neck journal is the usual reinforcement for a wooden shaft and could have been a duplicate of the original. Windshafts in mills in regular use apparently needed to be replaced periodically. The Wainscott (1813) mill received a new shaft in 1861 and Hildreth installed a new shaft in his wind-driven sawmill (1822) in 1871.[36] Other documented repairs in 1822 and 1838-1839 were mainly maintenance, but the "hook to the brase /brake?/" that John Burnet replaced in 1838 was probably similar to the cast iron one currently in the mill. This kind of brake hook and iron brake lever is found in some mid-nineteenth century English mills and is probably an improvement over the wooden lever and pulley used in most extant Long Island windmills.[37] It is possible that other repairs or improvements were made by James Corwith's son Charles, a master carpenter who worked on Daniel Hildreth's sawmill in Seven Ponds, but no extant records were located. Carpenters' wages were high in relation to the prices of produce; using Charles' carpentry skills might have enabled James to make major repairs at reduced expense.[38]

At least two of James Corwith's five sons, Caleb Howell and Samuel J., assisted their father in the mill and later became millers. Samuel also briefly worked as a carpenter, living with his brother Charles, and then went to sea. By 1855 he returned from his travels and lived with his father, taking over the windmill which he operated along with the farm.[39] In 1860, the federal census listed Samuel without an

occupation and neither father nor son acknowledged any real or personal assets. However, the Town of Southampton assessed both James and Samuel Corwith for the mill and farm for $1,500, indicating that Samuel was considered the co-owner of the mill.[40] In the same year James purchased the "angular tract of land" on which the windmill stood for twenty dollars from the Trustees of the Proprieters [sic] of Southampton.[41]

James Corwith died July 3, 1863 at the age of eighty-two.[42] No will was filed in Suffolk County and the Corwith family has no knowledge of a will. Corwith may have, however, agreed to turn over his assets, including the mill, to Samuel before his death. On January 12, 1864, James' sons Charles, Leander, Caleb and Silas conveyed "each of their right, title and interest in and to all the Real and Personal estate of which James Corwithe . . .died seized and possessed . . ." to their brother Samuel for a total of $200, probably confirming Samuel's de facto possession of James' farm and mill rather than reflecting the true value of the property.[43]

Samuel continued to run the mill along with farming his land. However, we have virtually no record of the mill's operation in these years other than the word of Samuel's biographer that he did run it. James L. Havens, a Bridgehampton blacksmith, records one repair to the "brac" on June 16, 1864 charged to Samuel Corwith.[44] In 1875, Samuel was appointed postmaster as Water Mill and in 1879 he bought a store. Probably these duties, along with farming, meant that milling was

at most an occasional occupation.[45] Samuel's son, James H. Corwith, apparently helped in the mill after Samuel began running the store. The Corwith family relates that James H. used to read "forbidden books" such as Peck's Bad Boy while he tended the mill for his father, probably in the early 1880s.[46] The Town of Southampton continued to assess Samuel for the mill until 1887, but the rise in value of his taxable property, to $2,000 in 1879, was due mainly to the acquisition of the store, which raised his assessment $400 above the previous year, and an increase in the value of his farmland. When he sold the mill and its small site a year later, his assessment dropped only $200.[47]

By 1880, many Southampton farmers, such as Corwith, had shifted production to poultry, market garden produce and potatoes, with much less wheat, corn and oats grown.[48] Probably the mill ran much less frequently than it had in the early nineteenth century and its production was declining. Most Long Island wind-driven gristmills recorded declines in production in these years.[49]

Then, in 1888, Josiah Lombard and Marshall Ayres, wealthy businessmen from New York City, purchased eight acres southwest of the windmill and built a large rambling Queen Anne style summer house on the site.[50] This residence and the plantings surrounding it apparently cut off the prevailing summer southwest wind making it more difficult to operate the mill.[51] It ceased grinding and in 1888 Lombard and Ayres acquired the mill from Samuel Corwith for $900.[52] It remained on its site and during the next few years Lombard and Ayres purchased

several additional small parcels to complete their country estate. This pattern was repeated many times on Long Island in the late nineteenth and early twentieth centuries as the Island became a summer retreat for the wealthy and large estates replaced farms, whose owners found their land worth more as decorative landscape than as productive farmland.[53] A Southampton farmer recalled that

> In the summer time the economy of Southampton was directed toward pleasing the wealthy people from the city. Large houses with many servants, gardeners, coachman and stableboys added to the population . . .the farmers sold hay for the horses and my father had several customers for eggs, butter and chickens on a weekly basis . . .[54]

During the years that the windmill was owned by Lombard and Ayres, some effort was apparently made to keep it in repair. The photograph of the mill taken c. 1889 with a section of the windshaft lying on the ground next to the mill suggests that the windshaft had just been replaced, perhaps with the one described in 1918, similar to that found in the mill today. The same photograph shows the sails still furled on the frames and the exterior in good condition.[55]

Lombard and Ayres apparently sold their country estate by 1896, when they were no longer listed on the Town of Southampton assessment rolls.[56] Samuel Corwith purchased the windmill back from them in 1895 for one dollar, selling it almost immediately to his son James H. Corwith for ten dollars. Probably these conveyances reflected a family attachment to the mill while the ownership of Lombard and Ayres' property was in flux, rather than any plans to operate it again; the value

of the mill and its site had seemingly declined to almost nothing by the end of the nineteenth century.[57]

Dr. Edward L. Keyes purchased the estate as a summer residence in 1896 and in 1898 acquired the windmill from James H. Corwith for ten dollars.[58] During the almost ten years that he owned the mill he

> . . . gave the green with its mill especial care, making it more and more attractive with repairs and appropriate planting.[59]

The "repairs" mentioned must have been mainly, if not exclusively, to the exterior of the mill, however, because the only photographs we have of the interior, taken c. 1918, show the brake wheel "toppling over." A postcard of the mill c. 1903 shows the sails, tailpole and exterior shingles in good repair with a stone foundation replacing the stones piled under the cant posts seen in the c. 1889 photograph. By 1906, ivy covered the windmill and its cart wheel appears to be missing. Another photograph c. 1906 shows several scattered saplings planted near the ivy-covered mill. This apparently was "appropriate planting" suitable to the mill's role as a decorative object on the Keyes estate.[60]

In 1909, Edward P. Morse, a Brooklyn shipbuilder, bought the Keyes property, including the windmill, and added a small parcel of the green owned by Theodore Halsey, completing the current dimensions of the mill's site. Morse maintained his summer residence in Water Mill for twenty years, in 1919 extensively remodeling the frame Victorian residence built by Lombard and Ayres into a stucco villa.[61] In 1929 Morse sold the estate, including the windmill, to Irene Ann Coleman

of New York City, who turned it over to the Nuns of the Order of St. Dominic of the City of Brooklyn in 1931. Shortly thereafter, they deeded the windmill and its 1.852 acre triangular green to the Trustees of Water Mill Park on the condition that the Town of Southampton maintain it as a public park and "keep the windmill thereon in good repair." Apparently all the conditions were "not performed," and the title to the property reverted to the Nuns. They reconveyed the windmill on May 17th, 1934 to the Water Mill Village Improvement Association, Inc., its present owners, who agreed to maintain the green and the mill as a public park.[62]

The Windmill at Water Mill does not seem to have fared very well during the years from 1909 to 1931. Morse, who owned it for most of this time, seems to have generally neglected it, although a photograph c. 1912 shows the mill with its tailpole and sails intact. In 1918 Edward P. Buffet, in an article on Long Island windmills, described the mill as "ruined," a view corroborated by photographs. His own show interior deterioration, particularly of the brake wheel, while another taken in 1919 shows that the tailpole is missing. By 1930 the windmill's sails were also gone although the stocks remained, and the shingles were considerably deteriorated.[63]

The windmill's preservation as a community landmark was celebrated in 1933 and its exterior as well as some of the interior, were evidently restored for that occasion, probably in 1931 or 1932. A local carpenter from Bridgehampton, James L. Norton, reshingled the mill and replaced the tailpole with

a locust stick from Smithtown. The sail frames were also replaced and new canvas sails made; these sails are extant. Some of the cap's framing and a few rotted boards were replaced, although most of the cap is original. Repairs were also made to two rotted cant posts and a rotted section of the curb. Galvanized iron bolts were added to stabilize the brake and great spur wheels. However, no real attempt was made to repair the mill's machinery. Photographs taken in 1935 show the exterior in excellent condition, with the tailpole braced to the cap with tie rods.[64]

The hurricane of 1938, one of the worst Long Island has ever sustained, did considerable damage to the mill and additional repairs were made in its wake. The cap slipped off the mill tower and had to be recentered on the cant posts. At least two stocks and sails were replaced. A new windshaft, apparently the one presently in the mill, was fashioned by a carpenter in Southampton, John Bennett. The tailpole was resecured to the mill cap. No other interior work was done until after another hurricane in 1954, when tie rods were installed to stabilize the cap sheers, a makeshift weather beam was created with 2" x 4"s piled under the windshaft and the tail of the windshaft was bolted with a collar to the tail beam. Two by eights were placed under the main vertical shaft above the short sprattle beam at the stone floor to support the shaft. The main short cross beam on the meal floor was reconstructed with 2" x 10"s. In the late 1950s the frames of at least two of the sails were again replaced and in the early 1970s new sash was installed throughout.[65]

No other major repairs or reconstruction have been undertaken.

The history of the Windmill at Water Mill in many ways parallels that of other eastern Long Island windmills. One of a considerable number of wind-driven gristmills built in an area which lacked sufficient water power, the mill was subsequently moved to a new location. Mills were apparently regarded as essentially "portable" objects and many were moved, some several times. With its production probably in decline, it ceased grinding toward the end of the nineteenth century when Long Island farmers had shifted production from grain to market garden produce and potatoes. Most other mills apparently recorded declines in production in these years as well. Along with the Windmill at Water Mill, several other mills attracted the attention of the new estate owners, who placed them on their large properties as decorative objects or even converted them to residences. Some remain as part of estates, but others, like the windmill at Water Mill, have become community symbols, publicly or privately owned for the benefit of the public. Recently, public awareness of alternative energy sources has refocused attention on the windmills, generating a new appreciation for their structure and operation and a new interest in preserving their machinery as well as their exteriors.

III. Structure and Machinery

Process Flow

The miller, pushing on the tailpole, turns the cap on a "dead curb," facing the sails into the wind. The four common sails rotate in a counter-clockwise direction, spinning the windshaft and the brakewheel attached to it. The cogs of the brake wheel engage with the lantern pinion wallower to drive the main vertical shaft. The great spur wheel on the stone floor powers two lantern pinion stone nuts mounted on iron quants to spin the runner stones of two pair of overdriven French burr stone. The north pair is fifty inches in diameter and the south pair fifty-four inches. Attached to each stone

spindle is a two-weight centrifugal governor of iron with lead ball weights set on a bridgetree and regulated on a steelyard on the ground floor. These lower and raise the runner stones in response to wind conditions.

Grain was ground at the mill by dumping it into the hoppers above the stones from which it fell into the shoes and was fed into the eyes of the runner stones. The runner stone, revolving above the fixed bed stone, drives the grain outward where it is ground by the radiating furrows cut on the stones' faces. The meal spout from the south grindstone leads to a bolter on the ground floor. The bolter was probably driven by a belt connected to a layshaft (now lying loose on the meal floor). The layshaft probably engaged with the crown wheel, an upward facing pegged trundle wheel attached to the main vertical shaft above the great spur wheel. The chute from the north pair of stones leads into a box on the meal floor. If the miller did not wish to run a pair of stones, the stone nuts were thrown out of gear by removing the bearing side cap of a "sprattle box," taking out the wedge and sliding out half the bearing allowing the spindle on which the nut is mounted to come out of its bearing sideways.[66] To stop the sails from turning the miller used a lever to apply a wooden brake shoe (now lying on the loft) to grip the outside rim of the brake wheel. The weight of the lever held the brake on, while a rope, pulley and cleat system released it.

Windmill Size

The Windmill at Water Mill measures 29 feet 4¼ inches from the first floor to the apex of the cap, making it the shortest surviving windmill on Long Island, with each ceiling height unusually low. It is the only one without a full third story. The mill is 20 feet 8½ inches accross the base and both the meal floor (first) and stone floor (second) are smaller in diameter than any other mill.[67] The sails, 23 feet 3/4 inches long, are the smallest of any found on an extant Long Island windmill. The governors, one under each run of stone, are "unusually low down and compact."[68]

Conical Cap

The two-gabled conical cap is found on six of the ten extant eastern Long Island windmills.[69] While conical caps are equally common in Cape Cod windmills, those generally have one gable, such as on the Eastham windmill, although at least one which has not survived, at Harwichport, had two gables like those found on Long Island mills.[70] The conical cap at Water Mill is framed with an umbrella truss of rafters mortised into a boss at the apex, the usual conical cap framing. Such a cap form is considered less efficient than the boat-shaped cap, which is found on only three Long Island mills but is considered "typical" on Cape Cod mills. It may be an earlier form of cap than the boat-shaped, but its origins are unclear.[71]

Common Sails

All extant Long Island windmills, including the Windmill at Water Mill, have common "double" sails, i.e. cloth-spread sails with sail area on both sides of the whips. The eastern Long Island mill sails uniformly have good "weather," i.e. the whip is twisted to form an angle to catch the wind. Common sails are an early form predating the English introduction of the spring sail in 1772 and the patent sail in 1807.[72] The common sail requires that the miller stop the mill and bring each sail down within reach in order to adjust the sail area,

whereas the later sail types automated these adjustments to some extent.

The English sail innovations do not appear in any Long Island or New England mill. Long Island millwrighting practice did, however, differ from that evident on extant New England mills, most of which have "single" sails with no "weather," a more primitive form of the common sail also found on early English and Flemish windmills.[73] A satisfactory explanation of these differences awaits further research on the dissemination of millwrighting technology, but one possibility is that local millwrighting traditions, perhaps imported from specific English locales and perpetuated by eastern Long Island's insularity, have had more influence on Long Island craft practice than cultural and economic contacts between Long Island and New England. The one drawing of a Long Island post mill which we have, probably dating from the late eighteenth century, also shows common "double" sails, but it is difficult to tell if they have any "weather."[74]

"Dead Curb"

The curb in a smock windmill is the timber ring upon which the cap circle rotates. All other surviving Long Island windmills have "live curbs," i.e. rollers interposed between the cap and tower which facilitate turning the sails into the wind. The Windmill at Water Mill is unique in lacking such rollers. Instead, its cap circle, centered on two-inch projections of the cant posts, rests directly on the curb, with generous greasing to reduce friction while turning. There are several examples of Massachusetts and Rhode Island mills with "dead curbs," ranging in construction date from 1746 to 1810.[75] Although the "dead curb" is cumbersome to operate and requires jacking the cap off the cant posts periodically to grease it, such curbs continued to be used in both England and New England in windmills constructed in the early nineteenth century.[76] Because of their continued use, particularly in nineteenth century English mills with other more modern features such as patent sails, it cannot be assumed that a "dead curb" is necessarily

a primitive survival of earlier millwrighting practice. Rather, it is possible that certain millwrights sought the added stability that such a curb provided. Perhaps mills built in exposed locations, as Hog Neck certainly was, needed the additional stability to reduce the danger of a tail wind dislodging the cap. Nantucket had several mills built in exposed locations with "dead curbs."[77] Other Long Island windmills which have not survived may have also had "dead curbs"; some extant mills may have originally had "dead curbs" which were converted to "live curbs" with the addition of rollers, as was done in the Farris mill in West Yarmouth, Massachusetts.[78] Therefore, although it appears to be a unique and primitive feature among eastern Long Island windmills, further research on English and Long Island millwrighting practice might modify this conclusion.

Tailpole

The Windmill at Water Mill is winded by a 36 feet 6 inch long locust log tailpole projecting from the east gable above the cap circle, braced by two external iron outriggers. During its grinding days the tailpole was also externally braced.[79] A cart wheel mounted on it at the ground facilitates rotating the cap. The miller may have pushed the wheel around himself or attached draft animals to it to turn the cap. While no other examples of this type of luffing mechanism survive on Long Island, the Hay Ground mill (1801) is said to have had a similar

arrangement before it was replaced by an automatic flywheel. Possibly other Long Island mills with fantails added later, including the Amagansett (c. 1814) and the Mill Hill (c. 1713) mills, also originally had tailpoles, as did Hildreth's sawmill (1822) at Seven Ponds, a post mill.[80] The tailpole currently on the Corwith windmill dates from the restoration of 1931/1932.[81]

A luffing mechanism of this type is a relatively primitive method of winding the cap of a smock mill, commonly used on English post mills but found in only three extant English smock mills.[82] Many Dutch mills even now employ an improved and strengthened version of the tailpole, but this innovation was apparently not familiar to eastern Long Island millwrights, as no examples of it are documented.[83] Post mills with tailpoles were apparently the first type of windmill built on eastern Long Island, and at one time there were at least eight of them in the area. A drawing of "Spider Legged Mill," in Bridgehampton, perhaps built in the late eighteenth century, shows a hexagonal post mill with common sails, a six-section domed cap and a two-timber V- shaped tailpole terminating in a cart wheel.[84] The millwright of the Water Mill structure may have adapted the winding mechanism from Long Island's extant contemporary post mills, but several Cape Cod, Nantucket and Block Island windmills built between 1723 and 1810 also employ a log tailpole mounted on a cart wheel. In fact, Rex Wailes considered this type of luffing mechanism "typical" of extant Cape Cod mills.[85] Long Island millwrights must have been familiar with such a

prevalent New England practice; possibly the builder of the Corwith mill came from New England, as did many of Southampton's early settlers, including the Corwith family, who came from Marblehead, Massachusetts.[86] Indeed, the similarities between the Windmill at Water Mill and those in New England give further evidence of the close economic and cultural ties between New England and eastern Long Island in the seventeenth, eighteenth and early nineteenth centuries, before the advent of the Long Island railroad in 1844.

Compass Arm and Lantern Pinion Gears

With the exception of the Beebe Windmill (1820), all other surviving Long Island mills containing major internal works have wooden gears and machinery, primarily oak. The gear construction of the Windmill at Water Mill is typical of these mills and serves as a good example of Long Island millwrighting technology in the late eighteenth and early nineteenth centuries. Its brake wheel, great spur gear, crown wheel and wallower exhibit four different types of gear construction found in Long Island windmills and in English windmills built before the introduction of iron bevel gears in the mid-eighteenth century. Wooden gears remain in use in England to this day and are still the rule in Holland.[87]

The brake wheel of the Corwith mill is an oak compass arm cogged face gear, built up of four cants mortised and pegged to four rim felloes. Two crossed timbers form the spokes of the compass arms, usually mortised into the windshaft but here the four windshaft timbers pass through the

arms of the brake wheel. The brake wheel is 90 inches in diameter and has 60 square-cut cogs mortised and pegged into the frame of the wheel, all but one now missing. In England the compass arm gear was generally superseded after the invention of the clasp arm gear in the eighteenth century, and few examples survive there.[88] On Long Island, however, clasp arm construction is found as an original feature only in the Beebe (1820) mill; it also replaced compass arm gears in the Pantigo mill (1771) brake wheel, the Gardiner's Island mill (1795) great spur wheel, installed in 1815 and the Hook mill (1806) cob-crusher, added in 1850.[89]

The great spur wheel is wedged to the main vertical shaft just below the bin (third) floor. It is also a compass arm gear of 70 inches diameter with 59 square-cut cogs placed on the outside rim of the wheel. Such spur gears were introduced in England in the eighteenth century, making it possible to have two run of stone arranged on either side of the main vertical shaft. This was an advance over the previous single stone mill with no intermediate gearing and the later "head and tail" post mill, with two pairs of stones driven by two gears or gear faces on the windshaft.[90] All surviving Long Island mills were constructed with great spur wheels, but the prevalence of compass arm construction in these as well as in the brake wheels of mills built in the early nineteenth century indicates an isolation from English millwrighting innovation.

Both the wallower and the two stone nuts in the Windmill at Water Mill are lantern pinion gears with oak disks bound with iron, and hickory staves. The wallower is 39 inches in diameter with 26 staves while the stone nuts measure 24 inches in diameter and have 17 staves. Like compass arm gears, lantern pinions are also survivals of earlier English practice, superseded in the eighteenth century by spur pinions with square-cut cogs and later by iron bevel gears.[91] With the exception of the Gardiner's Island (1795) and Gardiner (c.1804) windmills, which have wooden spur pinion stone nuts and the Beebe (1820) mill, with cast iron spur pinion stone nuts and an iron bevel gear wallower, all other Long Island mills have lantern pinion stone nuts and wallowers.[92]

Above the great spur wheel on the main vertical shaft is the crown wheel, which probably formerly engaged with a layshaft connected with a belt to the bolter. The crown wheel is an upward facing pegged trundle wheel 28 inches in diameter with forty round pegs. This is a gear contemporaneous with the lantern pinion and used in English windmills before the development of iron bevel gears.[93] On Long Island, only the Beebe (1820) mill has an iron bevel crown wheel; all others are trundle wheels, although some are downward facing rather than upward.[94]

The material and construction of these four types of gears in the Windmill at Water Mill, typical of most windmill machinery in eastern Long Island's mills, offer important documentation

of the wood joinery techniques practiced by eighteenth and nineteenth century woodworking craftsmen of Long Island's domestic and utilitarian architecture. They also demonstrate the isolation of Long Island's millwrights from English advances in millwrighting technology. However, New England mills, with compass arm brake wheels and a single pair of stones driven directly from a lantern pinion wallower, without any intermediate gearing (great spur wheel), appear to be survivors of an even earlier stage of millwrighting practice than Long Island's windmills. Explanation of these differences requires further research on the migration of technologies and the respective settlement patterns of the two areas.

Windshaft

The windshaft currently in the Windmill at Water Mill is unlike any other found on eastern Long Island or New England. This one probably dates from repairs made by John Bennett, a Southampton carpenter, after a hurricane in 1938, but its design may be c. 1889.[95]

The present windshaft is constructed of four 6" X 6" pine beams blocked 6 inches apart to pass through the compass arms of the brake wheel, and bolted to short wooden pieces at the journals. The head of the windshaft is built up of eight 4"X 4"s bolted and cinched together. While the pine beams appear quite recent and probably date from 1938, the tailpiece is oak and appears much older, probably nineteenth century. The shaft is supported on a makeshift weather

beam of stacked 2"X 4"s, installed after a hurricane in 1954 dislodged the windshaft and its cast iron neck bearing dropped on the ground.[96]

In the absence of any records, it is difficult to determine what the original windshaft may have been like. We know that a shaft, probably the original, was replaced in 1854, but we have no description of the replacement other than a statement that it was cut from a solid piece of white oak timber:

> I cut a white oak tree in Long Spring clost for Mr. James Corwith for a mill shaft [.] Sold it for $15 [.] It stood on the north side of the flag hole and meshered [sic] 10 ft round the butt[.][97]

The afore mentioned c. 1889 photograph shows the neck journal of a windshaft lying on the ground next to the mill; if this is the 1854 replacement, it apparently had what Rex Wailes called the "usual" neckwear in New England, iron strips set longitudinally into the wood of the shaft, separated by strips of wood. The iron strips prevented wear on the wooden windshaft at the neck. This neckwear often reinforced wooden windshafts in English mills before the advent of iron neck and tailpieces and iron shafts.[98] Some New England mills constructed between 1746 and 1810 display the same iron fillets on their windshafts and this neckwear was also found on the Hook (1806) mill, which has other Cape Cod features including the boat-shaped cap.[99] Given the 1800 construction date of the Windmill at Water Mill, it is quite likely that

the 1854 neck journal, on a solid timber shaft, duplicated the original.

The origins of the present windshaft are even more obscure. In 1918, Edward P. Buffet's article on Long Island windmills described the Corwith mill's shaft:

> . . . four rough logs bolted together with short filling pieces at the journal, but this may be only a makeshift, thrust through the loose and toppling driving gear [brake wheel] to support the wings. The pillow block [neck bearing] is generally wooden but here it is of iron and for that small mill, is cast to receive a shaft about 20 in. in diameter.[100]

In 1932, Rex Wailes described a similar windshaft:

> The neck and tail are of cast iron with a wooden "poll" fixed in front of the neck to hold the sail stocks, and in between the two iron castings and bolted up to them are four rough saplings from 6 in. to 9 in. diameter and none too straight.[101]

Although Buffet does not specify the material employed in the "short filling pieces at the journal," it seems probable that it was cast iron and that the shaft Wailes described in 1932 was the same as that of 1918. Wailes does not say that it is "recent," as he does the tailpole and shingles.[102] We do not know with certainty when this windshaft was installed, but it may have been c. 1889, as the photograph suggests, replacing the 1854 windshaft.

The c. 1889 windshaft may never have been intended to drive the mill. By this date Samuel Corwith had sold the mill and it had apparently ceased to operate; no written evidence

suggests that its new owners, Lombard and Ayres, planned to operate the mill. But structural evidence is conflicting--it

> . . . seemed to represent the absolute reversal of everything that was correct in millwright work [and it] seemed lamentable that a man should take the trouble to make iron castings and to put them on to a primitive form of shaft, made of four rough saplings, and then to pass the sails through a big block of wood.[103]

In addition to the iron neck and tail pieces the mill also had a cast iron neck bearing, perhaps installed at the same time. However, these apparently more advanced elements were joined to the "primitive . . . rough saplings" and the whole assembly terminated in a wooden, rather than cast iron, "poll." Retaining the square wooden "poll" conformed to local eastern Long Island practice, but the juxtaposition of the other elements is more difficult to explain. Perhaps the owner of the mill intended that the shaft be capable of operating and therefore considered iron neck and tail pieces, and a cast iron neck bearing, worth the "trouble." Why the central section of the shaft was then constructed with "four rough saplings" is a mystery. One possibility is that the use of iron neck and tail pieces to take most of the stress rendered a solid timber shaft superfluous. Since there are at least three other examples of similar "gerry-built" shafts in eastern Long Island windmills, in the Hook (1806), Beebe (1820) and Hayground (1801) mills, all dating from the late nineteenth

century or later, it is also possible that bolting four timbers together was common local practice in reconstructing windshafts in an area where windmills no longer served any real economic or technological function.[104] The particular form of the shaft of the Windmill at Water Mill, with the timbers passing through the brake wheel, is unique and was probably, as Buffet suggests, an effort to support the "toppling" brake wheel.[105] In the 1938 restoration, the carpenter apparently replaced the "saplings" with six-inch square pine timbers and the cast iron neck and tailpieces with wood, but the cast iron bearing remains.[106] The origins of the oak tailpiece, obviously much older than the pine timbers and perhaps a nineteenth century piece previously in that mill or another, are not known.

IV. Conclusion

The Windmill at Water Mill remains today on the site it has occupied for 165 years. Although it ceased grinding ninety years ago, it has made the transition from economic and technological utility, to decorative object to community symbol. The exterior of the structure is in good condition and is maintained as part of a village park; the interior is deteriorated and in need of considerable repair and restoration. The third floor is extremely weak and its western carrying beam has failed. Much of the mill's machinery, including the brake wheel, the great spur wheel and the wallower, are severely damaged by dry rot.

The Water Mill Village Improvement Association, Inc., which currently owns the mill, has expressed interest in restoring it, but lacks adequate funds. The mill's recent listing on the National Register of Historic Places has refocused attention to its needs and makes it eligible for matching grants and loans for restoration. This may enable the critical work to be done in order to assure the preservation of this importanr example of American vernacular and utilitarian architecture, which occupies a unique place among Long Island windmills.

Notes

1. Marion Nichol Rawson, Little Old Mills (New York, 1935), 123; Russella J. Hazard, Early Sag Harbor: The Windmills (Sag Harbor, 1957), 3; Elizabeth H. White, "Notes on Various Windmills," typescript, folder LL 104, East Hampton Free Library (hereafter EHFL); William D. Halsey, Sketches from Local History (Southampton, 1966), 29.

2. Town Trustees Records of Southampton, Part II, 1741-1826 (Sag Harbor, 1931) 48-49, 54, 349.

3. On site inspection, July 14, 1977; Rose E. Heatley, North Haven's 300 Years, 1665-1965 (North Haven, 1965), 12, also states that the Mitchel mill is the Windmill at Water Mill. However, Hazard, Early Sag Harbor, n.p. has a map which shows the Mitchell [sic] mill and the Corwith mill as two distinct windmills, with several other mills located nearby.

4. James Mitchel is identified as a shipowner in 1816 in a newspaper clipping in the Southampton Colonial Society Scrapbook, 172; John Jermain ran another mill until 1803 according to Hazard, Early Sag Harbor, 1; Samuel Corwithe Account Book, 1795-1835, n.p., manuscript MV-214, Queens Boro Public Library.

5. Heatley, North Haven, 12.

6. Pardon T. Tabor Account Book, 1807-1829, 101, manuscript MV-115, Queens Boro Public Library.

7. Rex Wailes,"Windmills of Eastern Long Island," in Cornell Jaray, ed. The Mills of Long Island (Port Washington, N.Y., 1962), 8; "Address of Carlton Corwith at dedication of tablet placed on the old Windmill at Water Mill, Sept. 3, 1934," 1, typescript, in the possession of Mrs. Evelyn C. Hansen, Southampton, N.Y.; interview, Dr. Arthur Corwith, Bridgehampton, N.Y., May 19, 1977; "L.I. Windmill of 1800 Accepted for Museum," New York Herald Tribune (September 5, 1933), n.p., clipping in folder JJ 7, EHFL.

8. Robert J. Hefner,"Gardiner's Island Windmill," Historic American Engineering Record-Society for the Preservation of Long Island Antiquities Report, August, 1977, 4; James Truslow Adams, Memorials of Old Bridgehampton (Bridgehampton, N.Y., 1916), 23; Sullivan Cook Account Book, 1808-1868, 32, manuscript #5, Suffolk County Historical Society; Dean F. Failey, Long Island Is My Nation: The Decorative Arts and Craftsmen, 1640-1830 (Setauket, N.Y., 1976), 273.

9. Deed, Jeremiah and Rebecca Ludlam to James Corwithe, February 29, 1810, unrecorded, in the possession of Miss Eleanor Corwith, Water Mill, N.Y. (hereafter Corwith collection).

Notes (cont.)

Perhaps this is the Ludlum whose name became identified in some local sources with the windmill. However, the Ludlam family operated the water mill from which the village received its name, in the seventeenth and eighteenth centuries; see Halsey, Sketches, 27.

10. George Rogers Howell, The Early History of Southampton, L.I., New York (Albany, 1887), 227; also an incription on an unacknowledged deed, Stephen and Sarah Sayre and Mehetabel Sayre to Nathaniel Griffing, April 8, 1811, Corwith collection, gives the same date.

11. Wailes,"Windmills," 8; Halsey, Sketches, 29.

12. Deed, Trustees of the Proprieters [sic] of the Common and undivided lands and marshes of the Town of Southampton to James Corwith, August 14, 1860, recorded April 25, 1898, Liber 469 of Deeds, 7-9, Suffolk County Clerk's Office (hereafter SCCO).

13. Gregory B. Paxton and Robert J. Hefner, "Hayground Windmill," National Register of Historic Places Inventory--Nomination Form, August, 1977, item 8, p. 1, SPLIA; Jeannette Edwards Rattray, The Old Hook Mill (East Hampton, N.Y., 1966), 11; Robert J. Hefner and Gregory B. Paxton,"Beebe Windmill," HAER-SPLIA Report, August, 1977, 4.

14. Advertisement, Suffolk Gazette (June 24, 1805), n.p.; Halsey, Sketches, 27; Kenneth Crews, "Old Water Mill at Water Mill," HAER-SPLIA inventory report, August, 1975; Charles A. Jagger, "The old Mill Hill Mill and Other Old Mills," The Southampton Magazine, vol. 1, no. 2 (Summer, 1912), 18, states that "At Watermill a windmill was erected to supplement the water mill, which could be used only when the bay was out," but since Jagger is refering to the 1800 Corwith mill here, the statement is probably incorrect. In 1814 the water mill no longer served as a grist mill and the two mills apparently had different functions.

15. Bond, James Corwithee to Stephen Howell, April 22, 1818, states that Corwith is a miller; deed, Howell Goodale to James Corwithee, October 15, 1818, unrecorded and unacknowledged, identifies him as a yeoman; both documents Corwith collection.

16. U.S. Census Office, Seventh Census of the United States, Schedule 1: Population, 1850, Suffolk County, Town of Southampton, 385; U.S. Census Office, Eighth Census of the United States, Schedule 1: Population, 1860, Suffolk County, Town of Southampton, 132; interview, Eric P. Corwith, April 27, 1977.

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17. Ralph Henry Gabriel, The Evolution of Long Island: A Story of Land and Sea (Port Washington, N.Y., 1960), Chapter VI.

18. U.S. Census Office, Seventh Census of the United States, Schedule 4: Productions of Agriculture in the Town of Southampton, Suffolk County, 1850, 657; U.S. Census, Schedule 1, 1850, 385; assessment rolls, Town of Southampton, 1851, Southampton Town Assessor's Office, lists twelve acres worth $1,000; assessment rolls, Town of Southampton, 1853-1857, 1859-1864 and 1866-1872 list twenty-four acres valued at $1,500, while the federal census of agriculture for 1850 lists thirty improved acres and fifteen unimproved acres and for 1860 lists thirty-six acres.

19. On-going research into mid-nineteenth century Huntington, Long Island, about sixty miles further west than Southampton, indicates that the lowest 40% of property-owners held real assets valued at $1,200 or less, and these people held only 4.2% of all the real assets held in the town, whereas the wealthiest 10% held 33.2% of the town's real property, at least as indicated on the 1850 federal census. However, only about 20% of the adult population held any property at all. Southampton may have differed somewhat, but scanning the census schedules gives the impression of a similar distribution of property.

20. Bill, B.H. Foster, Southampton, to James Corwith, February 13, 1846; bill, Samuel A. Sealy to James Corwith, n.d.; bill, Geo. and Chas. Brown and Co., Sag Harbor, to James Corwithe, January 1, 1849; bill, Samuel A. Sealy to James Corwith, n.d.; bill, Geo. B. Brown, Sag Harbor, to James Corwithe, February 11, 1846; all bills, Corwith collection; Daniel Hildreth Account Book, 1822-1854, 18 in the possession of Mr. and Mrs. Albert J. Halsey, Southampton, N.Y. (hereafter Halsey collection)

21. Bill, James Corwith to Daniel Fordham [month illegible] 2nd, 1841, Corwith collection.

22. Bond, James Corwithee to Stephen Howell, April 22, 1818, Corwith collection; mortgage, James Corwithee to Stephen Howell, April 22, 1818, recorded April 24, 1818, Liber F of Mortgages, 256-258, SCCO; assignment of bond, Stephen Howell to Silas, Mary and Abigail Corwithe, April 22, 1822, Corwith collection; assignment of mortgage, Stephen Howell to Silas, Mary and Abigail Corwithe, April 22, 1822, recorded May 7, 1825, Liber J of Mortgages, 147-148, SCCO;

Notes (cont.)

deed, Silas, Mary and Abigail Corwithe to Jeremiah Hains, September 13, 1824, unrecorded, Corwith collection; deed, James and Harmony [sic] Corwithe to Jeremiah Haines, September 13, 1824, recorded May 7, 1825, Liber B of Deeds, 230-232, SCCO; the land sold to Haines may have been that Corwith purchased from Howell Goodale, October 15, 1818, for $175, unrecorded and unacknowledged deed, Corwith collection.

23. Deed, James and Harmenah [sic] Corwithe to Mary, William and Silas Corwithe, April 8, 1818, unacknowledged and unrecorded, Corwith collection; deed, James and Harmeniah [sic] Corwithe to Mary, Silas and Abigail Corwithe, August 23, 1821, unrecorded, Corwith collection.

24. John Burnet Account Book, 1835-1839, n.p., Southampton Historical Society and Museum; Hildreth Account Book, 18; Diary of Daniel Hildreth III of Seven Ponds, 1800-1876, typescript from the original, Halsey collection; deed, Trustees . . .of Southampton to James Corwith, August 14, 1860, recorded April 25, 1898, Liber 469 of Deeds, 7-9, SCCO.

25. Burnet Account Book, n.p.

26. Hildreth Diary, 17.

28. Bill, Corwith to Fordham, [month illegible] 2nd, 1841.

29. Interview, Eric P. Corwith, May 2, 1978; "Address of Carlton Corwith," 1. Although we have no record of the operation of the Corwith mill, we do have a very full one for a wind-powered sawmill, owned by Daniel Hildreth of Seven Ponds. Hildreth's diary records repairs usually (but not always) made in September, October and November, with the mill operating most frequently between November and April. However, Hildreth does record sawing in other months. This diary makes it clear that most farmers with multiple occupations and skills did not neatly compartmentalize the time spent in each of their various activities. Hildreth sewed some crops, harvested others, made pumps, bored wells, worked at a blacksmith shop, and went fishing, oystering and clamming, all sometimes in the same month. Corwith must also have attended to his farming chores, as well as fishing, oystering and clamming, in addition to running the grist mill. See Hildreth Diary, passim. and Daniel Hildreth's Book, Sept., 185[illegible] - April, 1868. passim., typescript, Halsey Collection. See Part III: Structure and Machinery for a discussion of the luffing mechanism.

30. Only the Ninth Census of the United States, Schedule 4: Products of Industry, Suffolk County, 1870, indicates

Notes (cont.)

whether a mill was custom or mercantile or both. Of the five windmills listed in Southampton, East Hampton and Southold, all were custom, although one in Southold listed both custom and mercantile work. Of the windmills listed in the 1860 and 1870 Products of Industry Censuses of Southampton, only the Mill Hill Windmill, owned by Caleb Howell Corwith, operated twelve months a year.

31. Interview, Eric P. Corwith, May 2, 1978; Meade C. Dobson, "Windmill Data--1931," typescript, folder LL 104, EHFL; various bills (see footnote #20) indicate that Corwith probably produced mainly cornmeal and feed, since when he paid in kind it was generally in corn meal. The 1850, 1860 and 1870 Products of Industry Censuses for Suffolk County indicate that most wind-powered gristmills produced mainly feed for animals.

32. Interview, Eric P. Corwith, May 2, 1978; also Edward P. Buffet, "Some Long Island Windmills," American Machinist, vol. 49, no. 16 (October 17, 1918), 725.

33. U.S. Census Office, Eighth Census of the United States, Schedule 5: Products of Industry, Suffolk County, 1860 and Ninth Census of the United States, Schedule 4: Products of Industry, Suffolk County, 1870, list a total of thirteen wind-driven gristmills in the towns of East Hampton, Southampton, Southold and Shelter Island; Howell, History of Southampton, 159.

34. U.S. Census Office, Seventh Census of the United States, Schedule 5: Products of Industry, Suffolk County, 1850, lists no wind-driven gristmills in the Town of Southampton, but the 1860 and 1870 Products of Industry censuses also omitted the Corwith mill; U.S. Census, Population, Suffolk County, Town of Southampton, 1850, 385; Halsey, Sketches, n.p. has a map of Water Mill in 1850.

35. U.S. Census, Products of Industry, Suffolk County, 1860, 1870.

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36. "Photos of old postcards,"#s 26 and 27, folder DFB 117, EHFL; these photographs have no date but appear to be c. 1889. William Wallace Tooker photographed several eastern Long Island windmills c. 1889 and these may be among his. However, photocopies of Tooker's other windmill photographs are located in folder DFA 42, EHFL. Hildreth Diary, 35; Freese, Windmills, 35; for a more detailed discussion of the windshaft see Part III: Structure and Machinery.

37. Burnet Account Book, n.p.; John Reynolds, Windmills & Watermills (New York, 1970), 104-105, 108; Wailes, "Windmills," 16.

38. U.S. Census, Population, Suffolk County, Town of Southampton, 1850, 385; U.S. Census, Population, Suffolk County, Town of Southampton, 1860, 148; Hildreth Diary, 35.

39. "Samuel Corwith," Portrait and Biographical Record of Suffolk County, New York (New York, 1896), 738; "Caleb H. Corwith: One of the Pillars of the Church has Fallen," typescript of an obituary in the Southampton Press, n.d., c. 1902, in the possession of Mrs. Evelyn C. Hansen, Southampton, N.Y.; assessment rolls, Town of Southampton, 1856-1862, list both James and Samuel as owners of the property.

40. U.S. Census, Population, Suffolk County, Town of Southampton, 1860, 132; U.S. Census, Agriculture, Suffolk County, Town of Southampton, 1860, however, lists James Corwith with a farm valued at $2,000; assessment rolls, Town of Southampton, 1860.

41. Deed, Trustees . . .of Southampton to James Corwith, August 14, 1860, recorded April 25, 1898, Liber 469 of Deeds, 7-9, SCCO.

42. Obituary, "James Corwithe," Corrector (July 11, 1963), 318; "Mortuary Records Compiled by Members of the Southampton Colony Chapter Daughters of the American Revolution," 8, typescript, EHFL; an inscription on Corwith's gravestone in

Notes (cont.)

Water Mill gives his age as eighty-two.

43. Deed, Caleb H. Corwithe and Caroline Corwithe, Charles W. Corwithe and Susan M Corwithe, and Leander J. Corwithe and Helen R. Corwithe to Samuel Corwithe, January 12, 1864, recorded May 31, 1864, Liber 126 of Deeds, 408-409, SCCO; Silas W. Corwithe and Anna L. Corwithe to Samuel Corwithe, January 12, 1864, recorded May 31, 1864, Liber 126 of Deeds, 410-411, SCCO.

44. "Samuel Corwithe," Portrait and Biographical Record, 738; James L. Havens Account Book, 1858-1865, n.p., Bridgehampton Historical Society.

45. "Samuel Corwithe, Portrait and Biographical Record, 738.

46. Interview, Miss Eleanor Corwith, May 9, 1977.

47. Assessment rolls, Town of Southampton, 1874, 1876-1888.

48. U.S. Census, Agriculture, Suffolk County, Town of Southampton, 1880; Hildreth Book, 5.

49. U.S. Census, Industry, Suffolk County, Towns of East Hampton, Southampton and Southold, 1870, 1880.

50. Assessment rolls, Town of Southampton, 1887, assessed Lombard and Ayres as non-resident property owners; interview, Dr. Arthur Corwith, May 19, 1977; interview, Sister Dolores Matheis, O.P., April 25, 1977.

51. "Address of Carlton Corwith," 1.

52. Deed, Samuel Corwithe and Sarah H. Corwithe to Marshall Ayres and Josiah Lombard, October 6, 1888, recorded April 25, 1898, Liber 466 of Deeds, 596-598, SCCO.

53. Lombard and Ayres acquired a total of approximately twenty acres in six separate parcels recorded in Libers of Deeds, 312, pp. 475-477; 324, pp. 92-94; 329, pp. 132-133; 380, pp. 33-35; 396, pp. 460-461; and 466, pp. 596-598, SCCO; the Town of Southampton assessed them in 1888 for twenty acres valued at $20,000, including the windmill; Dennis P. Sobin, Dynamics of Community Change: The Case of Long Island's Declining "Gold Coast" (Port Washington, N.Y., 1968), 25-48, analyzes the development of the "Gold Coast," tracing the shift in landholding patterns from farms to estates,

Notes (cont.)

between 1890 and 1930. The same phenonmenon occurred to a lesser extent on the South Fork in Southampton and East Hampton. Several other windmills were incorporated into, or moved to, estates including the Beebe mill, the Hay-ground mill and the Shelter Island mill. Others, such as the Good Ground mill,became part of summer houses.

54. Albert J. Halsey,"Sequel to Hildreth Diaries," January, 1973, 3, typescript, Halsey collection.

55. "Photos of old postcards," #s 26 and 27, DFB 117, EHFL.

56. Assessment rolls, Town of Southampton, 1896.

57. Deed, Marshall Ayres and Francis N. Ayres and Josiah Lombard and Alice R. Lombard to Samuel Corwith, December 10. 1895, recorded April 27, 1898, Liber 467 of Deeds, 264-266, SCCO; deed, Samuel Corwith and Sarah H. Corwith to James H. Corwith, February 15, 1896, recorded April 25, 1898, Liber 466 of Deeds, 598-599, SCCO.

58. Deed, James H. Corwith and Mary W. Corwith to Edward L. Keyes, April 20 1898, recorded May 9, 1898, Liber 467 of Deeds, 412-414, SCCO.

59. Elizabeth H. White, "The Water Mill Windmill," Southampton Press (September 8, 1932, n.p., clipping in the Southampton Colonial Society Scrapbook, 655.

60. Photographs, probably taken by Edward P. Buffet for his article "Some Long Island Windmills," in the American Machinist, folder CD 17, EHFL; postcard, c. 1903, located in box "Mills and Milling," Suffolk County Historical Society; two postcards, c. 1906, in the possession of Barton McGuire, Water Mill, N.Y.

61. Deed, Edward L. Keyes to Edward P. Morse, December 23, 1909, recorded January 21, 1910, Liber 712 of Deeds, 233-236, SCCO; White, "Water Mill Windmill," Southampton Colonial Society Scrapbook, 655; interview, Sister Dolores Matheis, O.P., April 25, 1977.

62. Deed, Edward P. Morse and Ada M. Morse to Irene Ann Coleman, September 25, 1929, recorded October 2, 1929, Liber 1460 of Deeds, 300-303, SCCO; deed, Irene Ann Coleman to Nuns of the Order of St. Dominic of the City of Brooklyn, June 8, 1931, Liber 1585 of Deeds, 549-551; deed, Nuns of the

Notes (cont.)

Order of St. Dominic of the City of Brooklyn to Ancell H. Ball and ors., Trustees of Water Mill Park, September 10, 1932, recorded September 20, 1932, Liber 1671 of Deeds, 17-19, SCCO; deed, Nuns of the Order of St. Dominic of the City of Brooklyn to the Water Mill Village Improvement Association, Inc., May 17, 1934, recorded June 8, 1934, Liber 1766 of Deeds, 475-477.

63. Buffet, "Some Long Island Windmills," 727; photographs c. 1918, folder CD 17, EHFL; photograph, July 30, 1919, folder JJ7, EHFL; photograph, C 1930, JF89, EHFL.

64. "Address of Carlton Corwith," 1; "L.I. Windmill Accepted for Museum," New York Herald Tribune, n.p., clipping in folder JJ7, EHFL; interview, Eric P. Corwith, May 2, 1978; interview, Miss Eleanor Corwith, May 9, 1977. Rex Wailes visited eastern Long Island's windmills in the summer of 1932, according to Meade C. Dobson, "Long Island Windmills," New York Sun (September 13, 1933), 26, folder JF 111, EHFL. Wailes, "Windmills," 8, states that the tailpole and shingles are recent replacements at the time he inspected the mill. Glass negatives May 9, 1935 and October 31, 1937, taken by Fred Benedict, in the possession of Barton McGuire, Water Mill, N.Y.

65. Interview, Eric P. Corwith, May 2, 1978; interview, James L. Burnett, May 5, 1978; on site inspection, May 5, 1978.

66. On site inspection, May 5, 1978; Kenneth Crews, "Windmill at Water Mill," HAER-SPLIA survey report, August, 1975; Paxton and Hefner, "Windmill at Water Mill," National Register, August, 1977, item no. 7, p. 1; Wailes, "Windmills," 18.

67. Both the Pantigo and Gardiner mills are approximately the same diameter at the base, but are taller.

68. Buffet, "Some Long Island Windmills," 728-729.

69. The six mills are the Hayground, Pantigo, Mill Hill, Water Mill, Gardiner and Wainscott.

70. Wailes, "Notes," 105; William Fox, Bill Brooks and Janice Tyrwhitt, The Mill (Boston, 1976), 24-25.

Notes (cont.)

71. Wailes, "Notes," 105.

72. Freese, Windmills, 8-9.

73. Wailes, "Notes," 128.

74. Halsey, Sketches, 28.

75. These are the Farris Mill, West Yarmouth , Mass., before 1782; the Chatham Mill, Chatham, Mass., 1797; "Old Mill," Nantucket, Mass., 1746 and Boyd Mill, Newport, R.I., 1810. See Wailes, "Notes," 106, 109, 117, and 124.

76. Ibid., 109; letter, Niall Roberts to the author, May 20, 1978, indicates that five mills in Lincolnshire built after 1815 have "dead curbs."

77. Roberts to the author, May 20, 1978, 1; Reynolds, Windmills, 86 states: "early curbs were dead. In later years it became customary for a 'live'curb to be fitted."

78. Wailes, "Notes," 106.

79. Photograph c. 1889, #27, DFB 117, EHFL.

80. Wailes, "Windmills," 13, mentions the Amagansett, Mill Hill, Montauk Point and Good Ground mills as having flywheels which are replacements; Jagger,"The Mill Hill Windmill," 21

81. Interview, Eric P. Corwith, May 2, 1978.

82. Roberts to the author, May 20, 1978, 1; Freese, Windmills, 9, 35.

83. Reynolds, Windmills, 98; Freese, Windmills, 63.

84. Halsey, Sketches, 28.

85. Wailes, "Notes," 105, 109, 112-113, 115 and 123; these include the Harwichport mill, n.d.; Eastham, c. 1793, Chatham, 1797; four on Nantucket constructed 1723, 1746, 1759 and 1770; and one on Block Island constructed in 1810.

Notes (cont.)

86. Howell, History of Southampton, 226.

87. Reynolds, Windmills, 104, 107; Freese, Windmills, 11-12; Hildreth Account Book, 18.

88. Reynolds, Windmills, 104; Freese, Windmills, 41.

89. Hefner and Paxton, "Beebe Windmill," 13; Hefner, "Gardiner;s Island Windmill," 15-16; Paxton and Hefner, "Hook Windmill," National Register, item no. 7, page 2; Paxton and Hefner, "Pantigo Windmill," National Register, item no. 7, page 1.

90. Reynolds, Windmills, 104, 112; Freese, Windmills, 12-13.

91. Freese, Windmills, 11.

92. Hefner, "Gardiner's Island Windmill," 16; Paxton and Hefner, "Beebe Windmill," National Register, item no. 7, page 2; Paxton and Hefner, "Gardiner Windmill," National Register, item no. 7, page 2.

93. Freese, Windmills, 11.

94. Downward facing trundle wheels are found on the Gardiner Windmill and the Pantigo Windmill.

95. Interview, Eric P. Corwith, June 8, 1978; photograph, c. 1889, #27, DFB 117, EHFL, suggests that the windshaft had just been replaced.

96. On site inspection, May 5, 1978; interview, James L. Burnett, May 5, 1978.

97. Hildreth Diary, 17. Hildreth also mentions cutting timber for a new shaft for the Wainscott mill (1813), in 1861 and replacing the shaft in his own saw mill (1822), in 1871. See Hildreth Diary, 16, 35.

98. Freese, Windmills, 23, 35.

99. For example, the Farris Mill, West Yarmouth, Mass, built before 1782, the "Old Mill," Nantucket, 1746 and Boyd Mill, Newport, R.I., 1810; see Wailes, "Notes," 106, 118, 124.

100. Buffet, "Some Long Island Windmills," 727.

101. Wailes, "Windmills," 15.

Notes (cont.)

102. Ibid.

103. Rex Wailes, "Windmills of Eastern Long Island," The Newcomen Society for the Study of the History of Engineering and Technology, Transactions, vol. XV (1934-1935), 150.

104. See Paxton and Hefner,"Hook Windmill," item no. 7, p. 1; Paxton and Hefner, "Hayground Windmill," item no. 7, p. 1; Paxton and Hefner, "Beebe Windmill, " item no. 7, p. 1.

105. Buffet,"Some Long Island Windmills," 727.

106. Interview, Eric P. Corwith, May 2, 1978.

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Photograph, "Great spur wheel and gib crane for lifting stones - Morse," c. 1918, probably taken by Edward P. Buffet. EHFL.

Photograph, "Brake wheel, toppling over, and centre wheel - Morse," c. 1918, probably taken by Edward P. Buffet, EHFL.

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James L. Burnett, May 5, 1978.

Dr. Arthur Corwith, May 19, 1977.

Eleanor Corwith, May 9, 1977 and May 11, 1977.

Eric P. Corwith, May 2, 1978 and June 8, 1978.

Sister Dolores Matheis, O.P., April 25, 1977 and June 7, 1978.

Barton McGuire, April 21, 1977.

Appendix: Chain of Title

1800 Inscription found on stair: Began to Grinde Aug. 1, 1800. On site inspection, July 14, 1977

1813 Joshua Howell to James Corwith. 750 dollars.
[no deed located]
Mill moved by ox team from North Haven to Water Mill
Interview, Dr. Arthur Corwith, May 19, 1977

1818 James Corwithe and Harmenah Corwithe to Mary Corwithe, William Corwithe, Silas Corwithe. 1,400 dollars.
"a certain tract of Land with the Buildings thereon and out buildings, viz The Wind Mill and smoke hous [sic] . . . containing by Estimation nine acres . . ."
Deed April 8, 1818 [unrecorded and unacknowledged] in the possession of Miss Eleanor Corwith, Water Mill, N.Y.

1821 James Corwithe and Harmeniah Corwithe to Mary Corwithe, Silas Corwithe and Abigail Corwithe. 1,000 dollars.
Nine acres and also "all that certain Wind Mill standing on the High Way South of said premises ... ."
Deed Aug. 23, 1821 [not recorded] in the possession of Miss Eleanor Corwith, Water Mill, N.Y.

1860 Trustees of the Proprieters [sic] of the common and undivided lands and marshes of the Town of Southampton to James Corwith. 20 dollars.
"that angular tract of Land on which the Mill of James Corwith now stands."
Deed August 14, 1860, recorded April 25, 1898, Liber 469 of Deeds, pages 7-9, Suffolk County Clerk's Office

1864 Caleb H. Corwithe and Caroline Corwithe, Charles W. Corwithe and Susan M. Corwithe, and Leander J. Corwithe and Helen R. Corwithe to Samuel Corwithe. 150 dollars.
"each of their right title and interest in and to all the Real and personal estate of which James Corwithe . . . died seized and possessed . . ."
Deed January 12, 1864, recorded May 31, 1864, Liber 126 of Deeds, pages 408-409, Suffolk County Clerk's Office

1864 Silas W. Corwithe and Anna L. Corwithe to Samuel Corwithe. 50 dollars.
"All their right title and interest in and to all the Real and Personal estate of which James Corwithe . . . died seized and possessed . . ."
Deed January 12, 1864, recorded May 31, 1864, Liber 126 of Deeds, pages 410-411, Suffolk County Clerk's Office

1888 Samuel Corwith and Sarah H. Corwith to Marshall Ayers [sic] and Josiah Lombard. 900 dollars.
"land with the wind mill thereon . . . '
Deed October 6, 1888, recorded April 25, 1898, Liber 466 of Deeds, pages 596-598, Suffolk County Clerks Office

Appendix: Chain of Title (Cont.)

1895 Marshall Ayres and Francis N. Ayres and Josiah Lombard and Alice R. Lombard to Samuel Corwith. One Dollar. "land with the windmill thereon . . ."
Deed December 10, 1895, recorded April 27, 1898, Liber 467 of Deeds, pages 264-266, Suffolk County Clerk's Office

1896 Samuel Corwith and Sarah H. Corwith to James H. Corwith. Other valuable consideration and 10 dollars. "parcel of land with the windmill thereon . . ."
Deed February 15, 1896, recorded April 25, 1898, Liber 466 of Deeds, pages 598-599, Suffolk County Clerk's Office

1898 James H. Corwith and Mary W. Corwith to Edward L. Keyes. Ten dollars. "land . . . with the windmill thereon . . ."
Deed April 20th, 1898, recorded May 9, 1898, Liber 467 of Deeds, pages 412-414, Suffolk County Clerk's Office

1909 Edward L. Keyes and Sarah L. Keyes to Edward P. Morse. 100 dollars.
Eight acres, two roods, twenty-seven poles; one quarter of an acre; "land, with the windmill thereon . . ."
Deed December 23, 1909, recorded January 21, 1910, Liber 712 of Deeds, pages 233-236, Suffolk County Clerk's Office

1929 Edward P. Morse and Ada M. Morse to Irene Ann Coleman. 100 dollars. Same premises conveyed to . . . Edward P. Morse by Edward L. Keyes and Sarah L. Keyes including "land . . . with the windmill thereon;" also two other parcels of 1 acre, 38 poles and 7 acres.
Deed September 25th, 1929, recorded October 2, 1929, Liber 1460 of Deeds, pages 300-303, Suffolk County Clerk's Office

1931 Irene Ann Coleman to Nuns of the Order of Saint Dominic of the City of Brooklyn. 100 dollars.
Two parcels, 16.494 acres and 1.852 acres [windmill site]
Deed June 8, 1931, recorded June 24, 1931, Liber 1585 of Deeds, pages 549-551, Suffolk County Clerk's Office

1932 Nuns of the Order of St. Dominic to Ancell H. Ball, Elliott F. Bishop, James H. Corwith, David Gilmartin, John Murray, Joseph Murray, Trustees of Water Mill Park. One dollar
Deed September 10, 1932, recorded September 20, 1932, Liber 1671 of Deeds, pages 17-19, Suffolk County Clerk's Office

1934 Property reverted to the Nuns of the Order of St. Dominic because certain conditions were "not performed." [see next deed]

1934 Nuns of the Order of St. Dominic to The Watermill Village Improvement Association Inc. One dollar.
Deed May 17th, 1934, recorded June 8, 1934, Liber 1766 of Deeds, pages 475-477, Suffolk County Clerk's Office